FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

June 2 to 15, 2013 (Weeks 23 & 24)

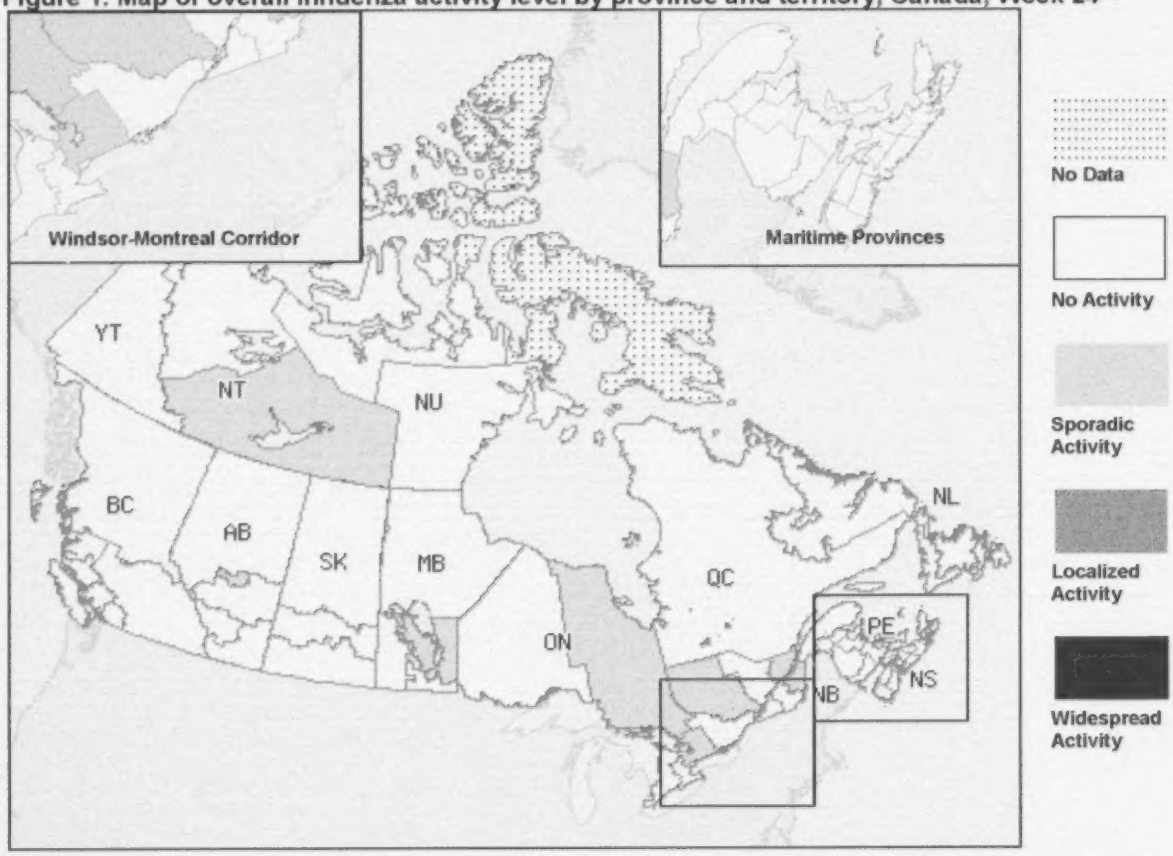
Overall Summary

- Influenza activity in Canada continued to decline, with only one region reporting localized activity during this 2-week period.
- Detections of rhinovirus continued to follow an overall upward trend, while detections of other respiratory viruses decreased. The percentage of laboratory tests positive for influenza was 1.1% in week 24.
- The ILI consultation rate has been fairly stable over the past 10 weeks, and has been above the expected range for the past seven weeks.

Influenza Activity (geographic spread) and Outbreaks

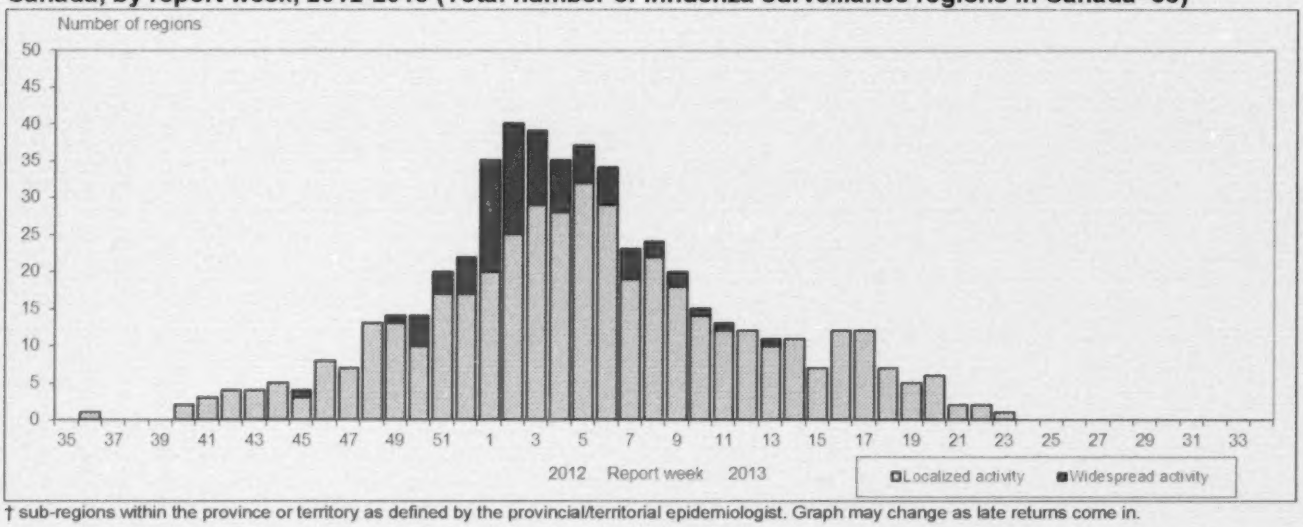
The number of regions reporting influenza activity continued to decrease in weeks 23 and 24. In week 23, one region in Quebec reported localized activity and 15 regions reported sporadic activity. In week 24, no region reported localized activity and 8 regions reported sporadic activity (Figures 1 and 2). One new influenza outbreak in a long-term-care facility was reported in week 23 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 24



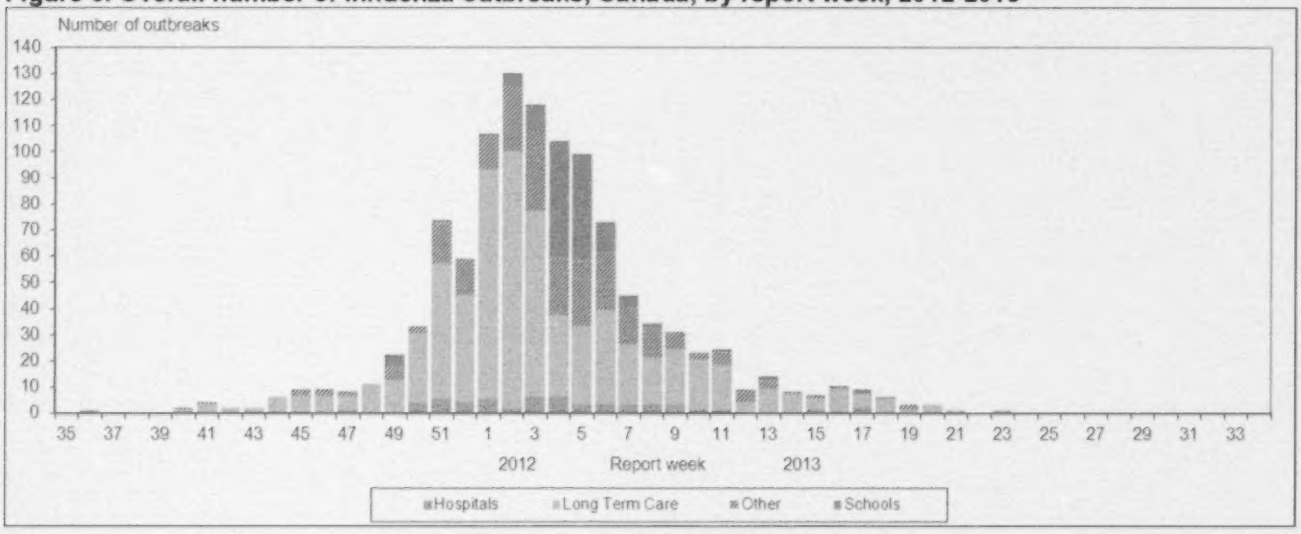
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests continued to decrease, and was 2.0% in week 23 and 1.1% in week 24. Among the influenza viruses detected in weeks 23 & 24 (n=53), 75.5% were positive for influenza B viruses; all influenza A viruses were either A(H3) or A(unsubtyped) (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.2% influenza A [34.4% A(H3), 4.7% A(H1N1)pdm09 and 60.9% A(unsubtyped)] and 14.8% influenza B (Table 1).

Detailed information on laboratory detections of influenza was received for 26,276 cases to date this season. Data on age and type/subtype was complete for 26,064 cases (Table 2). The proportion of cases by age group is as follows: 14.8% <5 years; 10.4% between 5-19 years; 16.3% between 20-44 years; 17.0% between 45-64 years of age; 41.5% ≥65 years.

The percentage of positive tests for rhinovirus continued the upward trend observed since week 01, and was 20.7% in week 23 and 18.9% in week 24. The percentage of positive tests for all other viruses decreased over weeks 23 and 24: parainfluenza (5.2%), respiratory syncytial virus (RSV) (1.2%), human metapneumovirus (hMPV) (1.7%) and coronavirus (0.6%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (June 2 to June 15, 2013)						Cumulative (August 26, 2012 to June 15, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	1	0	1	0	0	2	1916	0	1457	220	239	407
AB	0	0	0	0	0	12	2363	0	1771	448	144	840
SK	0	0	0	0	0	2	839	0	476	74	289	323
MB	0	0	0	0	0	2	659	0	79	10	570	114
ON	8	0	6	0	2	10	8282	0	3790	382	4110	948
QC	4	0	0	0	4	7	9815	0	546	36	9233	1938
NB	0	0	0	0	0	5	1872	0	771	75	1026	100
NS	0	0	0	0	0	0	388	0	165	8	215	9
PE	0	0	0	0	0	0	117	0	76	10	31	1
NL	0	0	0	0	0	0	719	0	152	0	567	18
Canada	**13**	**0**	**7**	**0**	**6**	**40**	**26970**	**0**	**9283**	**1263**	**16424**	**4698**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (June 2 to June 15, 2013)					Cumulative (Aug. 26, 2012 to June 15, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	0	0	0	0	4	3004	223	838	1943	849
5-19	0	0	0	0	8	1631	71	613	947	1076
20-44	1	0	0	1	2	3529	355	1215	1959	728
45-64	3	0	1	2	2	3719	327	1216	2176	702
65+	1	0	0	1	2	9985	135	3708	6142	841
Unknown	0	0	0	0	0	210	29	178	3	2
Total	**5**	**0**	**1**	**4**	**18**	**22078**	**1140**	**7768**	**13170**	**4198**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

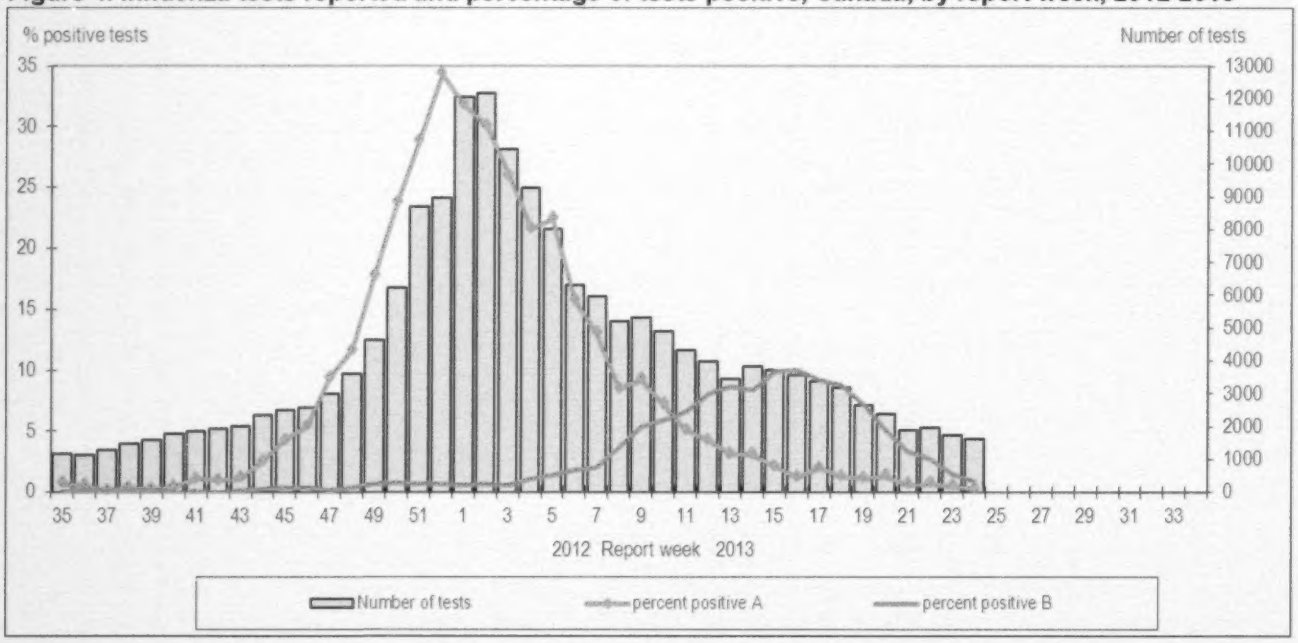
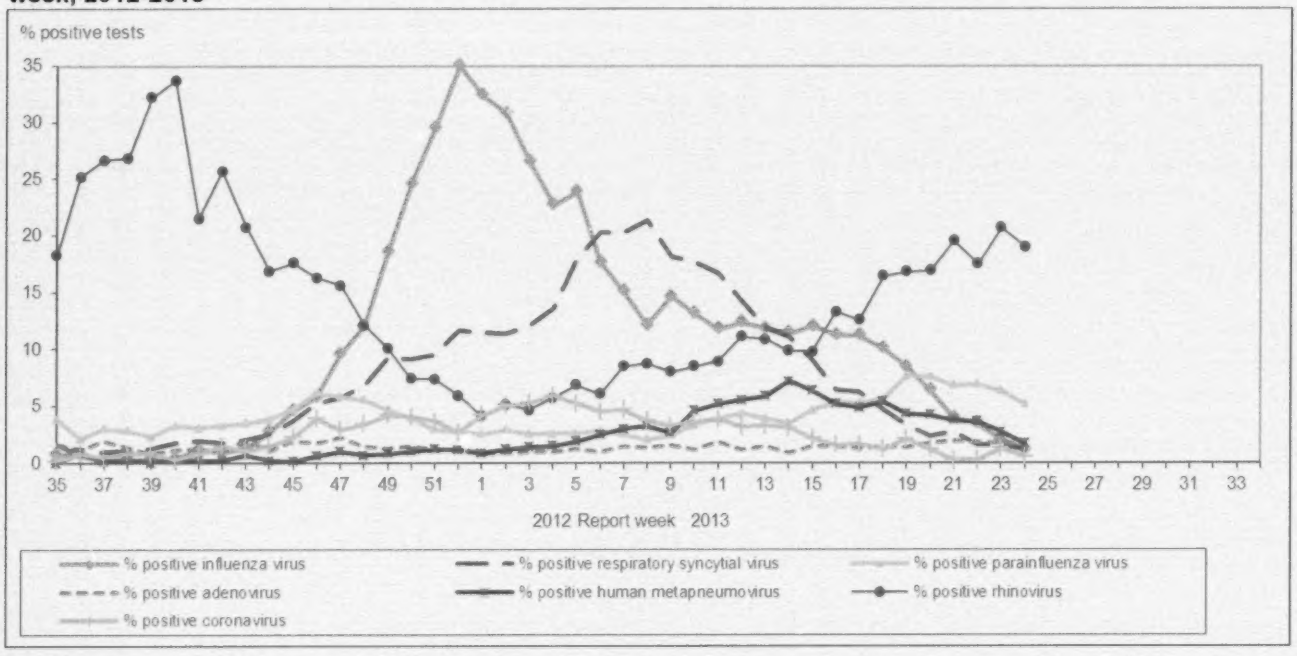


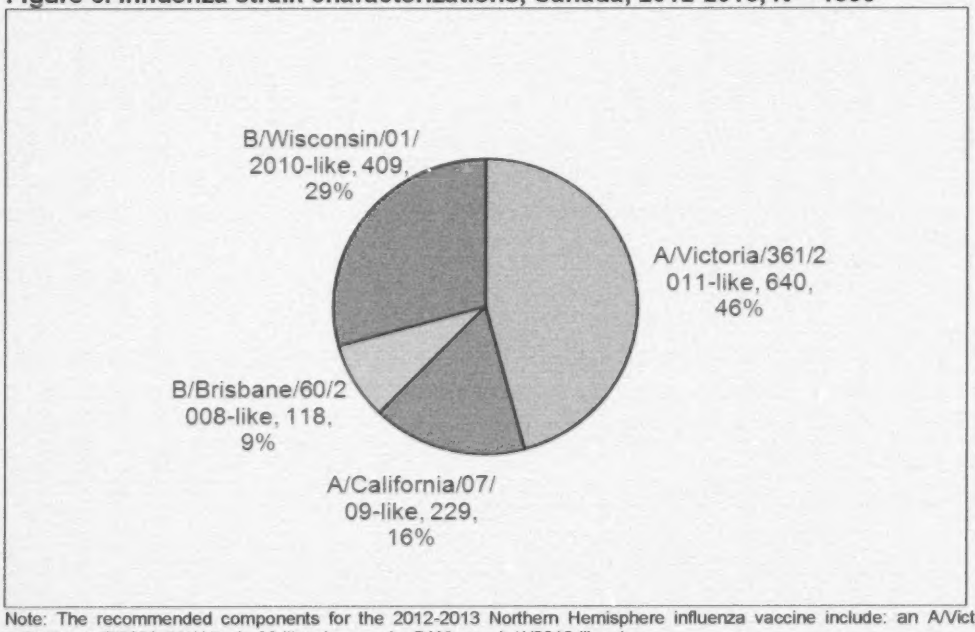
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1396 influenza viruses. The 640 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 229 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 409 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 118 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1396



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 1378 influenza viruses for resistance to oseltamivir, and 1375 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir and one A(H1N1)pdm09 virus was resistant to oseltamivir. A total of 1285 influenza A viruses were tested for amantadine resistance and all but one A(H3N2) virus were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

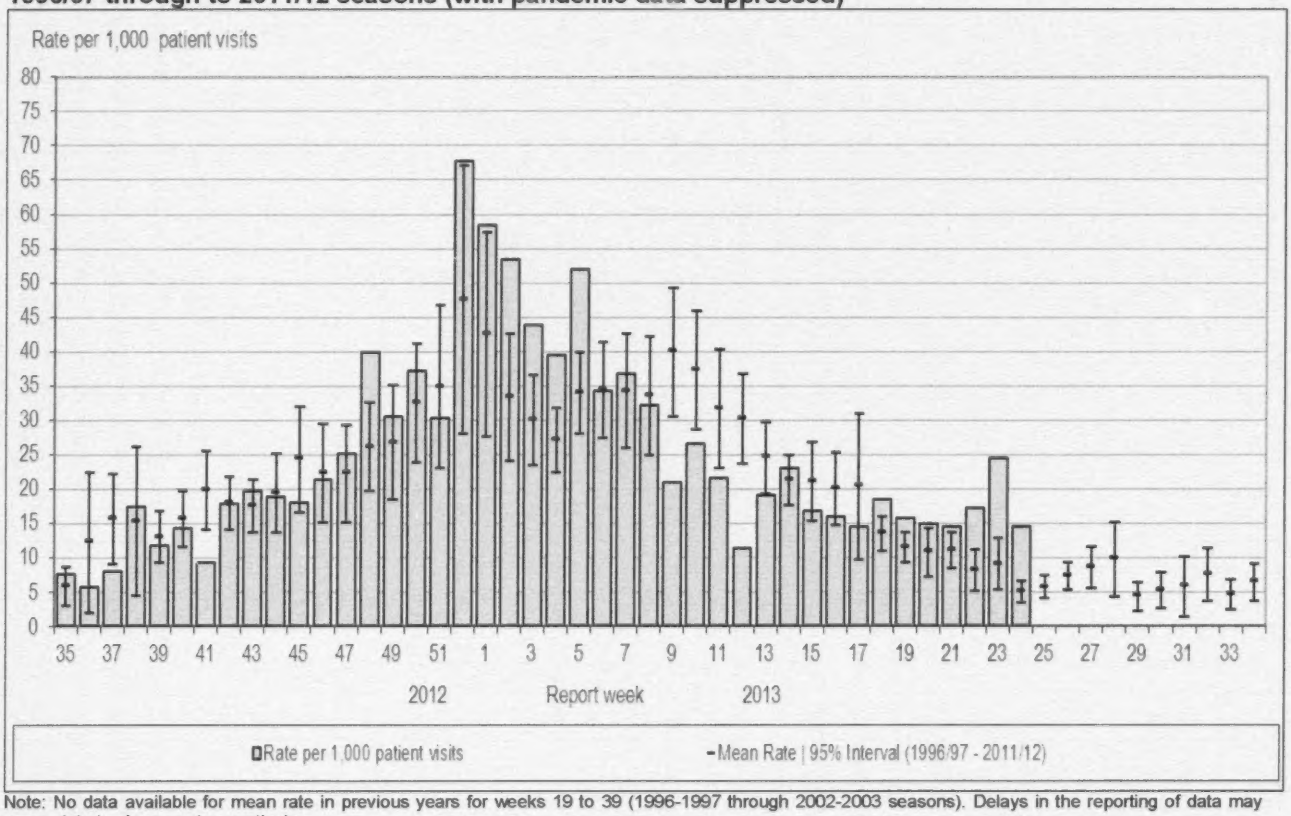
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	628	1 (0.2%)	628	1 (0.2%)	1018	1017 (99.9%)
A (H1N1)	229	1 (0.4%)	226	0	267	267 (100%)
B	521	0	521	0	NA*	NA*
TOTAL	1378	2 (0.1%)	1375	1 (0.1%)	1285	1284 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate has been similar for the past ten weeks, ranging from 14.3 to 24.4 ILI consultations per 1,000 patient visits, and was 14.4/1,000 in week 24. The rates observed in weeks 18 to 24 were above the expected range (Figure 7). The highest consultation rate was observed in children 5-19 years of age (48.2/1,000 visits) in week 23, and in children under 5 years of age (16.8/1,000 visits) in week 24.

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 23 and 24, three laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Two cases of influenza B: one in a child <6 months of age, and the other in a child 10-16 years of age; and one case of influenza A(unsubtyped) in a child 5-9 years of age were reported. No admissions to an intensive care unit (ICU) and no deaths were reported during weeks 23 and 24.

Since the start of the 2012-13 season, a total of 880 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 624 (70.9%) with influenza A [of which 124 (19.9%) were A(H3N2), 27 (4.3%) were A(H1N1)pdm09 and the remaining 473 were A(unsubtyped); and 256 (29.1%) with influenza B. The distribution of cases by age group is as follows: 162 (18.4%) <6 months of age; 202 (23.0%) age 6-23 months; 253 (28.8%) age 2-4 years; 188 (21.4%) age 5-9 years; and 75 (8.5%) age 10-16 years. Of the 880 cases, 99 (11.3%) were admitted to the ICU. Of the 76 ICU admissions with available data, 63 (82.9%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 15 out of 17 hospital sites. In weeks 23 and 24, no hospitalizations, ICU admissions or deaths were reported.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance since May 1, 2013. The cumulative number of cases is 1,809: 1,624 (89.8%) with influenza A [of which 312 were A(H3N2), 20 were A(H1N1)pdm09, and 1,292 were A(unsubtyped)]; 139 (7.7%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1,230 (68.0%) were ≥65 years of age, 373 (20.6%) were 45-64 years, 194 (10.7%) were 20-44 years, and 12 (0.7%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (123; 56.9%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In weeks 23 and 24, 45 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza B (51.1%). The highest proportion of hospitalisations was adults ≥65 years of age (44.4%), followed by adults 45-64 years of age (24.4%). There were no ICU admissions reported among the four cases with available data. Two deaths were reported: one case of influenza A(H3) in an adult aged 20-44 years, and one case of influenza B in an adult ≥65 years of age.

To date this season, 5,042 influenza-associated hospitalizations have been reported, of which 86.4% have been influenza A. Of those subtyped (49.3%), influenza A(H3) was the predominant influenza strain. Age information was available for 5,039 cases, and the age distribution is as follows: 2,653 (52.6%) were ≥65 years of age; 836 (16.6%) were 45-64 years of age; 450 (8.9%) were 20-44 years of age; 41 (0.8%) were 15-19 years of age; 273 (5.4%) were 5-14 years; and 786 (15.6%) were 0-4 years of age. Of the 1,397 cases with available data, there have been 221 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults ≥65 years of age, followed by adults 45-64 years of age (35.8% and 33.9%, respectively). To date, 312 deaths have been reported: 256 adults ≥65 years of age, 36 adults 45-64 years; 12 adults 20-44 years, one child 5-14 years of age, and seven children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

World Health Organization: No new influenza surveillance update was available from the WHO since 24 May 2013.
World Health Organization influenza update

Northern Hemisphere

United States: During week 23, influenza activity was at inter-seasonal levels.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In weeks 21 and 22, influenza activity was at inter-seasonal levels throughout the region.
EuroFlu weekly electronic bulletin

Southern Hemisphere

Carribean & Central America: Cuba and the Dominican Republic reported sustained circulation of A(H1N1)pdm09 in recent weeks.
PAHO Influenza Situation Report
WHO FluNet

South America: Acute respiratory illness (ARI) activity continued to show an increasing trend in week 23. Brazil has reported increased circulation of influenza A(H1N1)pdm09, as well as influenza B in some states, since week 15. Andean countries reported a steady level of ARI activity with continued co-circulation of influenza A(H1N1)pdm09 in Colombia and Venezuela; with A(H3N2) in La Paz-Bolivia; and with influenza B in Santa Cruz-Bolivia. In the Southern Cone, ARI activity was high and close to or at the epidemic threshold. RSV continued to be the predominant virus circulating, but increasing co-circulation of influenza A(H1N1)pdm09 was reported in Argentina and Chile, and A(H3N2) in Paraguay.
PAHO Influenza Situation Report
WHO FluNet

South Africa: Increasing circulation of A(H1N1)pdm09 has been reported since week 17.
South Africa Influenza surveillance report

Australia & New Zealand: Consultation rates for ILI were below the baseline level, with few specimens positive for influenza in week 23.
New Zealand Public Health Surveillance
Australia Influenza Report
WHO FluNet

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): No new cases of human infection with avian influenza A(H7N9) have been reported since 29 May 2013.
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Since 7 June 2013, ten additional laboratory-confirmed cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) have been reported by the WHO, including eight deaths – five of which were in previously reported cases. All cases and deaths occurred in Saudi Arabia. The cases ranged from 2-83 years of age (median 55 years), and nine of the cases had underlying medical conditions. The 2-year-old case is the third paediatric case reported to date, and also had underlying medical conditions. There have been no cases reported since June 17, 2013.
Since April 2012, 64 laboratory-confirmed cases and one probable case of human infection with MERS-CoV have been reported, including 38 deaths. Most patients are male (72%; 46 of 64 cases) and range in age from 2 to 94 years (median 56 years).
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants have been reported to date in 2013.
Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.